

SFB
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Protonation Dynamics
in Protein Function

Mon, Dec. 9,
2019

16:15 – 17:30

Freie Universität Berlin
Physics Department
Lecture Hall A

(Arnimallee 14, 14195 Berlin-Dahlem)

➤ Colloquium

➤ Prof. Erik Schleicher – Albert-Ludwigs-Universität Freiburg

Photoactivation of *Drosophila melanogaster* cryptochrome: A sequence of electron and proton transfer reactions?!

Cryptochromes are a large family of blue-light photoreceptor proteins that provide input signals to circadian clocks and are involved in magnetosensing. Specifically, the cryptochrome from *Drosophila melanogaster* (DmCry) modulates the degradation of the protein Timeless and itself by light-dependent interactions; however, it is unclear how light absorption and the subsequent redox reactions by the FAD chromophore trigger these reactions. Our approach to unravel these events is to use various nano- to millisecond time-resolved spectroscopy and scattering methods. It is shown that after light excitation a transient radical pair is formed that is stabilized by deprotonation and triggers pH-dependent conformational changes in the protein, which ultimately lead to the unfolding of the C-terminus after about one millisecond. The influence of several conserved amino acids is discussed in this context.

Coffee and tea are ready at 16:00 and after the Colloquium.

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